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ABSTRACT

The use of readability formulae to estimate the difficulty levels of vocational reading materials, the determination of relationships of reading skills to job proficiency, and the relationship of general reading ability to performance on specially constructed job reading task tests (JRTT) are discussed to define the literacy skill demands (i.e., functional literacy levels) for three military jobs having civilian counterparts: cook, automotive rapairman, and supply clerk. Results indicated that the three jobs differ with respect to demands they make for reading skills with the median falling in the 7th grade range. Furthermore, having described procedures for identifying job reading tasks and for constructing JRTT, results indicated that while general reading and JRTT performance are positively correlated, the JRTT are sensitive to selection and training, and hence are measures of both special and general job reading abilities which can facilitate maximum transfer of skills from the class to the job. (HS)

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ABSTRACT

Describes research to develop job reading task tests (JRTT) for three military jobs having civilian counterparts: cook, automotive repairman and supply clerk. Relationships of general reading ability to performance on JRTT are described for men in three groups: an unselected sample, a group selected for special aptitude in a JRTT area, and a group both selected and trained in the JRTT area. Results indicate that, while general reading and JRTT performance are positively correlated, the JRTT are sensitive to selection and training, and hence are measures of special job reading abilities as well as of general reading abilities.

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Development and Evaluation of Job Reading Task Tests

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Functional literacy has been variously defined as "...the ability to read and write a simple message in any language," "...ability to read at the fourth grade level," "...achievement of the eighth grade level," and the like (Corder, 1971). Such definitions may be criticized because, among other things, they fail to specify how literate a person must be to function adequately in performing some denotable adult-level reading tasks. That is, in asserting that a person who reads at the fourth grade level is functionally literate, it is not clear what kinds of adult reading tasks the person can perform, not how well he can perform them.

The present research aimed at providing information about how well a person needs to read to perform *selected* adult reading tasks with various levels of proficiency. The adult reading tasks studied were restricted to a given domain of adult activities: job performance. Using this approach, "functional literacy" is defined in terms of work-related reading skills rather than reading skills for general adult reading tasks. It seems clear that the major concern with illiteracy, on the part of both society and the functionally illiterate, is economic. Society considers the functionally illiterate as a drain upon economic resources, or at least as a non-contributor to economic development. The functionally illiterate views literacy primarily as a means to better jobs and higher incomes. For these reasons, "functional" literacy would seem best defined in relation to the reading demands of jobs.

Illiteracy and Military Manpower Considerations

The present report describes research to define literacy skill demands (i.e., functional literacy levels) of a set of jobs for what is clearly one of the Nation's largest employers: The Department of Defense. In this regard it should be noted that only some 14 percent of jobs within the Armed Services are strictly military. The remaining 86 percent have representation in civilian occupations (Wool & Flyer, 1969). Also, a military career is annually *chosen* by thousands of men and women as a means of obtaining education and training not otherwise available to them. Many of these people are lacking in education, or their education is of poor quality. The latter is suggested by data (Department of Defense, 1968) which indicate that, of a group of 46,000 men who scored below the twentieth percentile of the Armed Forces Qualification Test (AFQT), 43 percent had completed high school, yet 90 percent read at or below the eighth grade level!

Awareness of the low reading skills of many military recruits has led military manpower specialists to seek information about the reading requirements of military jobs. Such information is useful for the selection and classification of men into jobs, for setting objectives for remedial literacy training geared to job literacy demands, and for determining if the currently stated literacy requirements are over or under demanding. The obtaining of such information formed the basis for several research studies on the assessment of literacy demands of various Army jobs (Sticht, et al., 1971; Caylor, et al., 1972). In accomplishing this research, a variety of approaches for assessing literacy demands of jobs were used, including the use of readability formulae to estimate reading

difficulty levels of job reading materials, determination of relationships of reading skills to job proficiency indexed by three different measures, and, to be discussed in this paper, relationships of general reading ability to performance on specially constructed job reading task tests (JRTT).

Objectives of This Report

This paper will describe research to develop and utilize JRTT to assess reading requirements for three Army jobs: General Vehicle Repairman (DOT[2] Code 620.281); Unit and Organization Supply Clerk (DOT Code 223.387); and Cook (DOT Code 310.138). These jobs were selected for study because they represent jobs into which many men of marginal literacy may be assigned, they cover a range of skills from mechanical to clerical, and they have representation in civilian jobs.

The primary objective of this research was to obtain data concerning relationships between general reading ability of men, measured by standardized reading tests (SRT) which provide reading scores in grade-school equivalencies, and performance on job reading task tests (JRTT). These data provide the basis for establishing definitions of functional literacy in terms of minimal general reading grade levels associated with various criterion levels of achievement on the JRTT. Data are also presented which indicate the extent to which JRTT sub-tests, JRTT total scores, and SRT appear to measure the same competency, i.e., general reading ability.

A second objective of this research was to determine the effects on JRTT performance of specific aptitude for a job (defined as having been assigned to training for that job on the basis of aptitude test scores, which presumably reflect prior interest, information, ability, or

experience in that job area); and to determine the combined effects on JRTT performance of having been assigned to a job area on the basis of specific aptitude *and* having completed a training school in that job area.

A third objective of this research was to obtain data showing relationships among the Armed Forces Qualifying Test (AFQT), standardized reading test (SRT) performance, JRTT and end-of-course academic scores for men completing training school in the appropriate job area. Such data indicate the relative effectiveness of the various reading measures for predicting success in job training.

Finally, throughout this paper we draw attention to conceptual and procedural problems encountered in identifying job reading materials, in constructing job reading task tests, and in determining general reading levels for "successful" performance on JRTT. By foregrounding these problems, we hope to make clear the limitations and also certain virtues of the present research, and of future research in which the construct of "adult reading tasks" is used to define "functional literacy."

Identifying job reading tasks

One method for identifying job reading tasks is to perform a job analysis to identify all job tasks, and to then note the job reading tasks. Such a procedure may reveal two categories of job reading tasks: those for which reading is an inherent, direct involved part of the task, such as reading incoming correspondence to determine appropriate action, and those for which reading is not an inherent aspect of the task, such as changing a tire on a 2-1/2 ton truck. In the latter instance, however, there may exist written manuals telling exactly how the tire is to be

changed, and the *formal, prescribed* job task may be to change the tire *in accordance with the directions in the manual.* In this case, then, while reading skill is not needed to perform the ultimate task, changing the tire, there is an enabling task -- reading the manual -- involved in making certain that the tire is changed according to the specified procedure. Most Army jobs appear to contain tasks of this nature; for most tasks and jobs there is an appropriate manual, regulation, etc., which provides step-by-step directions for performing the tasks. Though most of these tasks can be learned by "show-and-tell," and hence do not require that the person be able to read, reading the manual is a part, though not always explicitly so recognized, of the *formal* job requirement. On the other hand, to *always* recognize the formal task requirement would be tantamount to asserting that practically *all* Army tasks require reading skill and hence are job reading tasks!

The foregoing highlights one of the procedural problems encountered in attempting to identify job reading tasks. If the officially prescribed job tasks form the basis for identifying reading tasks, then reading task tests may be constructed for reading materials which are seldom if ever used on the job. Thus, if supervisors or management people are queried to determine what job reading materials a man must be able to read and use, they are likely to respond in terms of the formal job prescription, or what they believe, ideally, a man *should* be able to read and comprehend.

In the present research, we have used an approach to determine job reading tasks which provides *a sample of reading tasks reported by job incumbents interviewed at their job sites.* This approach ignores formal job prescriptions, and concentrates instead on the day-to-day reading

tasks men perform -- whether as inherent reading tasks or as enabling reading tasks for the performance of a non-reading job task. This procedure greatly compresses the time, cost, and effort which would otherwise be involved in job and task analysis.

Procedure for identifying job reading tasks

To identify job reading tasks, men in the three jobs named above were administered structured interviews at their job locations. Among other things, the interviewer asked each man to give five examples of times during the "past month or so" when he had been doing some job task and had had to consult some job reading material(s). In each case he was asked to describe the job task he had been performing and to tell what information he had been seeking when he went to the reading material. Then he was asked to get the manual or other job reading material and to locate the exact page or part he had used. He was then asked to show the interviewer the specific parts of the material he had used in obtaining the desired information. This process was repeated until either five instances had been described or until the individual could give no more; in any event, he was not pressed for examples beyond five in number.

It should be mentioned at this point that, for our research, we informally noted that in several instances, when a man was asked to get the manual he had reported using, or when he was asked to locate the part he had used, he would slowly recall that in fact *he* hadn't used the manual at all, rather his supervisor or peer had used it. These instances indicate a problem in relying solely upon reported use of reading materials. People may "fake good," and hence estimates of reading tasks may be incorrect. We

believe our procedure reduced "faking good" to some degree.

Subjects

Men interviewed were first-enlistment men with total time on the job falling between one and eighteen months on the job. Thus the data refer to job reading tasks for entry and apprentice level job performance.

There were 30 men interviewed in the Supply field; 48 from the Cook's job; and 85 from the Repairman's job. The men represented three levels of literacy skill (determined by prior administration of the Survey of Reading Achievement, Junior High Level, California Test Bureau); grade levels 4-6.9; 7-8.9; and 9+, with approximately equal distribution over the three levels.

Constructing job reading task tests

As mentioned earlier, each man interviewed was asked to cite five instances in which he had used reading materials in his work in the last month or so. He was also asked to locate the reading material, show the interviewer the exact page and section he had used, and to tell what kind of information he had been seeking.

With this information, it was possible to subsequently obtain copies of the reading materials cited as being used on the job by the men in the three jobs (Supply, Repairman, Cook). With these materials in hand a classification scheme was devised by which each page or section of reading materials cited in each job could be classified in terms of the type of information it displayed. We have referred to the type of information displayed as the *content type* of the printed material. The classification system used for categorizing the various materials is presented in Table 1.

Insert Table 1 about here

In using this classification scheme to construct reading task tests, the reading materials cited by the men in each job were sorted into the six different content categories. Setting aside Category I (Tables of Content and Indexes which were obvious and simple to classify), materials in the remaining five categories were sorted independently by two judges, who agreed on 87%, 80%, and 96% of their initial judgments in the Repairman, Supply, and Cook jobs respectively. However, it should be noted that in the process of sorting materials, difficulties of the classification scheme became apparent. For instance, should the unit of classification be based upon a line (sentence or two), or upon a paragraph, or major sub-section of a technical manual? How should pictorial materials be classified? Such questions indicate the difficulties involved in classifying printed materials. To expedite the present research, we classified materials on the basis of the major sub-section of a publication. Thus a section which gave the procedures for filling out a form was classified Procedural Directions, even though there may have been standards and specifications given in the context of the material.

In addition to identifying job reading materials, the interview provided data about the kind of information a man had been seeking when he used the material. In other words, we obtained information about the kinds of questions men working on the job addressed to the job reading materials.

With the above information, and with copies of the printed materials cited as being used on the job by the men in the three jobs (Supply,

Repairman, Cook), job reading task tests (JRTT) were constructed. These tests represented the most frequently mentioned reading material content types, and required the testee to seek the kind of information from the materials which job incumbents reported seeking. No prior knowledge specific to the job was required to be able to answer any questions. Three separate tests were constructed, each using job-specific, job-reading materials.

Table 2 lists the sub-tests in each JRTT. The variety in the sub-tests for the JRTT for the different jobs reflects the variety of different content types cited by men in the different jobs. Also given is the difficulty level, in terms of the modified Flesch readability formula of both the job material and the test material, where there was sufficient continuous prose to compute the readability index. In all measurable cases, the difficulty level of the materials exceeded that of the test questions.

Insert Table 2 about here

The general nature of one of the reading task tests is shown in Figure 1, using a portion of the Cook Index test. As indicated, questions about the job reading material were presented on the right side of the test booklet and the job reading materials were presented on the left side of the booklet. This construction was similar for all subtests in the job reading task test for each job.

Insert Figure 1 about here

Reading ability related to job reading task test performance

Relationships of general reading ability to performance on the JRTT were evaluated by administering the JRTT for each job and a standardized reading test (SRT) to three groups:

(1) an unselected sample of several hundred Army recruits at the Fort Ord, California, Reception Station, referred to as the RS group;

(2) an unselected sample of several hundred men in their first week of job training (JT) for Vehicle Repairman, Supply Clerk, and Cook, referred to as the Pre-JT group; and

(3) an unselected group of several hundred men in their 7th week of job training, referred to as the Post-JT group.

In addition to the administration of the JRTT and SRT, AFQT and End-of-Course grades were extracted from administrative files where possible. With the latter grades, it was possible to compute validity coefficients for the JRTT, SRT, and AFQT.

Insert Table 3 about here

Means, Standard Deviations, and Numbers (N) Tested

Table 3 presents, for each job, data for AFQT, Standardized Reading Test (SRT) performence, in reading grade level (RGL) scores, and scores for each sub-test and total score on the Job Reading Task Tests (JRTT). Column 1 presents the maximum possible score for each test or subtest. Columns 2, 5 and 8 present data for men tested at the reception station (RS group). Columns 3, 6 and 9 present data for men selected for special aptitude in the job who were in the first week of job training -- the

Pre-JT group. Columns 4, 7 and 10 present data for the Post-JT men, i.e., men who had completed their job.

The major data of interest in Table 3 concern the differences between means and standard deviations (SDs) for the JRTT performance of the RS, Pre-JT and Post-JT groups. Presumably, the JRTT mean scores should increase in that order, while the SDs should decrease in that order because the RS group is an unselected group, the Pre-JT group was selected for their job training because of special aptitude for that work, and the Post-JT group was both selected for special job aptitude *and* had completed job training. While the data for SDs show a consistency with the foregoing expectations, the mean scores are less consistent, and those changes in the expected direction are trivial.

Insert Figures 2, 3, and 4 about here

The mean scores from Table 3 are based on data summed over men showing a wide range of reading abilities. As the data of Figures 2, 3, and 4 indicate, such summing conceals much of the influence of selection and selection plus training on JRTT performance. These figures present mean correct scores on the JRTT for men of differing reading grade levels in RS, Pre-JT and Post-JT groups. These data indicate that, while in general the Post-JT group exhibits better JRTT performance than do the RS or Pre-JT groups, this difference is most apparent for the poorer readers. The fact that job training produces improved performance on the JRTT, at least in the lower range of readers, attests to the validity of the JRTT as a measure of job-related reading ability.

A second major finding presented in Figures 2, 3, and 4 is that general reading ability is highly related to JRTT performance for all three groups. This is further indicated in Tables 4, 5, and 6 which present intercorrelation matrices for AFQT, SRT (in reading grade levels-RGL), JRTT and sub-tests, and End-of-Course Academic (EOCA) grades.

Insert Tables 4, 5, and 6 about here

Examining the three tables, it is seen that SRT (RGL) is about equally correlated with AFQT and JRTT, with r's ranging from .66 to .82 for SRT and AFQT, and from .65 to .80 for SRT and JRTT. Thus, to a large extent, these three instruments appear to be measuring similar skills. This is further evidenced by the somewhat lower, yet consistently positive correlation coefficients for AFQT and JRTT. The somewhat lower r's for AFQT and JRTT than for AFQT and SRT may reflect the fact that whereas the AFQT and SRT were constructed to discriminate amongst testees, the JRTT was designed to measure ability to perform job reading tasks and was not designed to illuminate differences among testees.

Intercorrelations among JRTT sub-tests and remaining variables

Generally speaking, the intercorrelations among the sub-tests for each JRTT are moderate and positive. The lowest r's are obtained with the Post-JT data, which more than likely reflects the more homogeneous nature of the subjects (Table 3, Columns 5, 6, 7) over those of the RS and Pre-JT groups, and the near-ceiling attainment levels (see Table 3, Columns 2, 3, 4) of many Post-JT men on sub-tests with small point values.

Insert Table 7 about here

For the Reception Station (RS) group, Table 7 presents relationships of each JRTT subtest with the sum of all other subtests in a given JRTT. As indicated, the r's are all moderately high indicating that each subtest is measuring the same capacities as measured by the sum of the other subtests. These correlations are quite high considering that the JRTTs were not designed to increase the variance amongst subjects, which would tend to enhance these r's. These data, and those of the preceding paragraph suggest that each subtest provides a moderately effective measure of general reading ability, as well as a measure of job-related reading skills.

Reliability of JRTT

The testing schedule for the Pre-JT and Post-JT groups was such that a small sample of men in each school was included in both groups. For the Repairman, Supply Clerk, and Cook schools the numbers of men for whom both Pre- and Post-JT scores were available were, respectively: 36, 98, and 37. For these groups, test-retest reliabilities for the JRTT were, respectively, .85, .74, and .80, indicating acceptable levels of stability of scores on the test instruments.

Validity of AFQT, SRT, and JRTT for predicting End-of-Course Academic (EOCA) Grades

As mentioned earlier, for Pre- and Post-JT groups, end of course academic grades were obtained. Intercorrelations for these EOCA grades and AFQT, SRT, and JRTT are presented in Tables 4, 5, and 6. In these tables

it should be noted that the coefficients for AFQT and Pre-JT groups with EOCA are predictive validity coefficients, because tests were administered seven weeks prior to the awarding of an EOCA grade. On the other hand, the coefficients for SRT and JRTT with EOCA grades for the Post-JT groups are concurrent validity coefficients, because the reading tests were administered during the last week of job training, when final EOCA grades were assigned.

Overall, it is clear that the three predictor tests show moderately strong, positive correlations with EOCA. As expected, the coefficients for the various JRTT subtests are less than for the JRTT total scores, primarily reflecting the reduction in number of items and lower reliabilities of the subtests.

Of note is the fact that the AFQT and SRT, both non-job related measures of reading, are equally as effective as the JRTT in predicting academic achievement in job training, even though the JRTTs reflect job-specific reading content and format. Thus, while the JRTTs have greater job content validity than do the AFQT and SRT, and hence provide a direct index of a subject's ability to perform job reading tasks, the AFQT and SRT permit the same efficiency of *prediction* of job training achievement as the JRTTs.

Insert Figure 5 about here

Using JRTT to Determine Job Literacy Demands

To demonstrate how JRTT and SRT relationships might be analyzed to determine reading skills required to perform the job reading tasks, Figure 5 is presented. This figure shows the percentage of Post-JT men

who scored at or above a criterion level of 70 percent correct performance on the JRTT in relation to the reading ability level of the men as determined by the SRT.

To determine functional literacy levels for these jobs using the JRTT approach, it is necessary to specify the criterion level of JRTT performance desired, in this case 70% correct, and the numbers of subjects who must attain the criterion level. Thus, for example, if a 70/70 decision rule is established, that is that 70% of the subjects must get 70% correct on the JRTT, then, from the dotted lines in Figure 5 we can determine that the minimum reading grade level for the Cook's job is within the 6.0-6.9 range, for Repairman the range is 7.0-7.9, and for Supply Clerks the range is 9.0-9.9!

Obviously, the estimates of reading requirements based on JRTT will change as the decision rule is changed. Decisions concerning how *low* criterion levels might be set must be based upon additional knowledge, such as supply-demand characteristics of the manpower situation, whether or not literacy training will be provided, and what additional information is available concerning the reading demands of jobs.

Summary and Conclusions

In this paper we have described procedures for identifying job reading tasks and for constructing job reading task tests. Procedural problems discussed include:

1. Job reading materials identified may differ if supervisors or management personnel rather than workers are asked to designate job reading materials.

2. Job reading materials identified by interviewees may differ if the latter are permitted to simply state what they read, rather than being required to obtain and designate the reading materials they have used.

3. Because of the wide variety of job reading materials used in jobs, it is necessary to categorize materials for the purpose of constructing reading task tests. Classification schemes for categorizing job materials are not standardly available, thus individual researchers must provide their own, perhaps not universally acceptable categorization schemes. Even then, it is not clear what the unit of analysis should be: a book, sub-set of a book, a domain of content, etc., for categorization purposes.

4. Use of the concurrent validity paradigm for establishing functional literacy requirements of jobs necessitates decisions concerning criterion levels of achievement on job reading task tests and proportions of people at any given reading level who must achieve the criterion level of achievement. Such decisions are likely to be more-or-less arbitrary, depending upon additional information the decision-maker has.

Results of this study indicate that the job reading task tests constructed in this research provide valid estimates of both general reading ability and ability to perform job reading tasks. The first conclusion is based upon correlations ranging from .65 to .80 for scores on a standardized reading task and the job reading task tests. The second conclusion is indicated by data showing that men who completed job training performed better on the job reading task tests than men of similar general reading ability who had not had special job training. That the job reading task tests are sensitive to job training indicates they are valid measures of job-related reading skills.

Finally, this research has indicated that the three jobs studied (Cook, Vehicle Repairman, and Supply Clerk) differ with respect to the demands they make for reading skills, with the median literacy requirement falling in the 7th grade range. "Functional Literacy" must thus be viewed as an abstract, complex variable which may take on different values depending upon the nature of the reading tasks encountered, the conditions under which the work is performed (does the person work alone or with somebody), and the standards of excellence set by decision makers.

For the above reasons, it would seem appropriate to assign adult basic education objectives for students on the basis of the literacy demands of the job-field in which the student wants to work (assuming employment as the student's primary motivation for being in the class). To the extent possible, it would appear desirable to provide job-related literacy training as well as general literacy training, to facilitate maximum transfer of skills from the class to the job.

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Footnotes

1. The research reported in this paper was performed at HumRRO Division No. 3, Monterey, California, under Department of the Army Contract with the Human Resources Research Organization (HumRRO); the contents of this paper do not necessarily reflect official opinions or policies of the Department of the Army. Reproduction in whole or in part is permitted for any purpose of the Department of the Army. Acknowledgements are due and hereby given to Drs. Richard Kern, Richard McCrady and Howard McFann, and to Lynn Fox, Pat Ford, Don Enderby, Don Polden, and Nina McGiveran for their valuable contributions to this research.

2. The DOT Code refers to the Department of Labor classification code given in the Dictionary of Occupational Titles.

Table 1

Job Printed Material Content-Type Categories

1. **Tables of Content and Indexes:**

   Content designating the location of information within a publication.

2. **Standards and Specifications:**

   Content setting forth specific rules or tolerances to which task procedures or the completed profuct must conform.

3. **Identification and Physical Description:**

   Content attempting to symbolically represent an object via an identifying code (stock number, nomenclature) and/or by itemizing its distinguishing physical attributes.

4. **Procedural Directions:**

   Content which presents a step-by-step description of *how* to carry out a specific job activity. Essential elements are equipment/materials/ingredients to be used, and how they are to be used, with presentation organized in a sequential step-wise fashion.

5. **Procedural Check Points:**

   Content which presents a key word or highly summarized version of *what* should be done in carrying out a task rather than how it should be done. This content differs from the content classified under Procedural Directions in that it assumes the user knows how to carry out the steps once reminded that the step exists and/or reminded of the decision factors which determine whether the step is required.

6. **Functional Description:**

   Content which presents an operating (cause and effect, dependency relationships) description of some existing physical system or subsystem, or an existing administrative system or subsystem.

Table 2

Content Types and Difficulty Levels of Job Reading Task Test Materials and Test Questions

Job	Test	Content Type[2]	Reading Difficulty Level[1] Job Material	Test Questions
Repairman	A	1	N/A	8.5
	B	2	N/A	8.5
	C	4	14.5	8.5
	D	4	N/A	8.5
	E	4	14.5	11.0
	F	6	16+	N/A
	G	5	14.5	8.5
Supply Clerk	A	1	N/A	6.0
	B	2	N/A	8.5
	C	3	N/A	7.0
	D	4	16+	11.0
	E	5	8.5	7.0
Cook	A	1	N/A	5.0
	B	4	N/A	7.0
	C	4	7.0	6.0
	D	4	8.5	6.0

[1]Reading difficulty levels are readability levels in school grade equivalents, see text.

[2]Content Types follow the numbering in Table 1

Table 3

Means, Standard Deviations and Numbers Tested for AFQT; Standardized Reading Test (SRT/RGL) and Job Reading Task Tests (JRTT) for Three Jobs

		Mean			Standard Deviation			N		
	Maximum	R.S.	Pre-JT	Post-JT	R.S.	Pre-JT	Post-JT	R.S.	Pre-JT	Post-JT
	1	2	3	4	5	6	7	8	9	10
Cook										
AFQT	99	47.90	39.79	50.69	25.63	24.85	25.85	193	292	212
SRT/RGL	14.5	9.61	8.68	10.06	2.58	2.86	2.58	191	187	217
JRTT A	10	6.79	5.91	7.65	2.59	3.06	2.44	195	32[2]	298
B	10	8.82	8.83	9.28	1.51	2.25	1.25	195	322	298
C	22	17.31	15.62	18.79	5.17	6.18	4.26	195	322	298
D	10	5.18	4.82	6.32	3.66	3.92	3.80	195	322	298
Total	52	38.10	34.66	42.04	10.67	12.98	9.62	195	322	298
Supply										
AFQT	99	49.91	47.82	40.66	26.31	25.60	25.53	220	285	273
SRT/RGL	14.5	9.72	9.68	9.18	2.72	2.52	2.46	222	310	314
JRTT A	10	6.26	7.28	7.19	2.48	2.31	2.12	222	312	315
B	5	3.40	3.93	3.81	1.22	1.03	1.07	222	312	315
C	8	5.87	6.61	6.52	2.12	1.21	1.10	222	312	315
D	16	7.58	9.06	9.16	3.98	3.69	3.12	222	312	315
E	8	5.27	5.79	5.17	2.77	2.69	2.91	222	312	315
Total	47	28.39	32.68	31.84	9.98	8.23	7.39	222	312	315
Repairman										
AFQT	99	47.62	57.21	54.47	27.32	23.66	26.90	197	214	365
SRT/RGL	14.5	9.42	9.78	9.45	2.72	2.09	2.35	201	219	248
JRTT A	10	6.57	7.20	7.54	1.97	1.63	1.64	201	219	410
B	10	8.72	9.32	9.43	2.15	1.24	1.19	201	219	410
C	3	2.60	2.79	2.79	.71	.51	.51	201	219	410
D	13	9.62	11.04	11.21	2.95	2.40	2.30	201	219	410
E	8	5.75	6.29	6.48	2.01	1.63	1.46	201	219	410
F	11	8.05	8.92	9.35	2.89	2.11	1.93	201	219	410
G	7	4.92	5.59	5.76	2.20	1.81	1.54	201	219	410
Total	62	46.22	51.15	52.56	11.39	7.69	7.55	201	219	410

Table 4
Intercorrelation Table for
Vehicle Repairman

	VARIABLE	CATEGORY	1 AFQT N	1 AFQT r	2 SRT(RGL) N	2 SRT(RGL) r	3 JRTT TOT. N	3 JRTT TOT. r	4 TEST A N	4 TEST A r	5 TEST B N	5 TEST B r	6 TEST C N	6 TEST C r	7 TEST D N	7 TEST D r	8 TEST E N	8 TEST E r	9 TEST F N	9 TEST F r	10 TEST G N	10 TEST G r	11 EOCA N	11 EOCA r	CATEGORY
1	AFQT	Rec.Sta.			199	.79	199	.66	199	.57	199	.44	199	.38	199	.52	199	.42	199	.56	199	.53			Rec.Sta
		Pre-JT			214	.73	214	.58	214	.55	214	.38	214	.24	214	.33	214	.22	214	.49	214	.44	201	.58	Pre- JT
		Post JT			219	.78	365	.65	365	.54	365	.36	365	.30	365	.45	365	.37	365	.58	365	.49	364	.72	Post JT
2	SRT(RGL)	Rec.Sta.					201	.76	201	.62	201	.58	201	.46	201	.45	201	.52	201	.74	201	.62			Rec.Sta.
		Pre- JT					219	.71	219	.55	219	.49	219	.32	219	.41	219	.32	219	.62	219	.53	205	.60	Pre- JT
		Post JT					248	.65	248	.54	248	.41	248	.25	248	.42	248	.40	248	.57	248	.51	247	.67	Post JT
3	JRTT Tot	Rec.Sta.							201	.77	201	.80	201	.63	201	.73	201	.75	201	.85	201	.73			Rec.Sta
		Pre- JT							219	.71	219	.67	219	.42	219	.71	219	.59	219	.77	219	.67	205	.49	Pre- JT
		Post JT							410	.75	410	.72	410	.46	410	.72	410	.64	410	.83	410	.68	409	.66	Post JT
4	Test A	Rec.Sta.									201	.58	201	.45	201	.52	201	.45	201	.59	201	.47			Rec.Sta.
		Pre- JT									219	.50	219	.30	219	.35	219	.30	219	.47	219	.40	205	.47	Pre- JT
		Post JT									410	.49	410	.28	410	.40	410	.35	410	.60	410	.45	409	.57	Post JT
5	Test B	Rec.Sta.											201	.50	201	.44	201	.56	201	.67	201	.50			Rec.Sta.
		Pre- JT											219	.24	219	.33	219	.21	219	.45	219	.48	205	.29	Pre- JT
		Post JT											410	.31	410	.42	410	.38	410	.57	410	.42	409	.49	Post JT
6	Test C	Rec.Sta.													201	.40	201	.46	201	.52	201	.39			Rec.Sta.
		Pre- JT													219	.28	219	.24	219	.28	219	.15	205	.23	Pre- JT
		Post JT													410	.28	410	.26	410	.28	410	.36	409	.30	Post JT
7	Test D	Rec.Sta.															201	.46	201	.47	201	.37			Rec.Sta.
		Pre- JT															219	.34	219	.40	219	.30	205	.32	Pre- JT
		Post JT															410	.31	410	.51	410	.28	409	.47	Post JT
8	Test E	Rec.Sta.																	201	.56	201	.50			Rec.Sta.
		Pre- JT																	219	.38	219	.24	205	.19	Pre- JT
		Post JT																	410	.44	410	.40	409	.34	Post JT
9	Test F	Rec.Sta.																			201	.59			Rec.Sta.
		Pre- JT																			219	.42	205	.40	Pre- JT
		Post JT																			410	.47	409	.57	Post JT
10	Test G	Rec.Sta.																							Rec.Sta.
		Pre- JT																					205	.34	Pre- JT
		Post JT																					409	.45	Post JT
11	EOCA	Rec.Sta.																							Rec.Sta.
		Pre- JT																							Pre- JT
		Post JT																							Post JT

Table 5

Intercorrelation Table for
Unit and Organization Supply Clerk

			1 AFQT		2 SRT(RGL)		3 JRT Tot		4 Test A		5 Test B		6 Test C		7 Test D		8 Test E		9 EOCA	
	VARIABLE	CATEGORY	N	r	N	r	N	r	N	r	N	r	N	r	N	r	N	r	N	r
1	AFQT	Rec.Sta			221	.79	221	.65	221	.53	221	.44	221	.49	221	.60	221	.44		
		Pre-JT			283	.75	285	.60	285	.45	285	.39	285	.32	285	.52	285	.44	245	.60
		Post JT			273	.75	273	.58	273	.40	273	.42	273	.15	273	.49	273	.43	267	.54
2	(SRT(RGL)	Rec.Sta.					222	.78	222	.66	222	.53	222	.62	222	.67	222	.54		
		Pre- JT					310	.74	310	.56	310	.47	310	.45	310	.62	310	.56	267	.61
		Post JT					314	.70	314	.51	314	.52	314	.20	314	.55	314	.55	307	.55
3	JRT Tot	Rec.Sta.							222	.81	222	.66	222	.77	222	.85	222	.78		
		Pre- JT							312	.76	312	.59	312	.62	312	.83	312	.77	269	.62
		Post JT							315	.71	315	.59	315	.48	315	.79	315	.78	308	.62
4	Test A	Rec.Sta.									222	.52	222	.58	222	.55	222	.57		
		Pre- JT									312	.43	312	.41	312	.44	312	.51	269	.46
		Post JT									315	.37	315	.35	315	.37	315	.42	308	.49
5	Test B	Rec.Sta.											222	.48	222	.51	222	.38		
		Pre- JT											312	.37	312	.40	312	.34	269	.31
		Post JT											315	.21	315	.41	315	.35	308	.41
6	Test C	Rec.Sta.													222	.52	222	.52		
		Pre- JT													312	.42	312	.37	269	.36
		Post JT													315	.26	315	.22	308	.24
7	Test D	Rec.Sta.															222	.50		
		Pre- JT															312	.45	269	.56
		Post JT															315	.42	308	.50
8	Test E	Rec.Sta.																		
		Pre- JT																	269	.42
		Post JT																	308	.44
9	EOCA	Rec.Sta.																		
		Pre- JT																		
		Post JT																		

Table 6

Intercorrelation Table for Cooks

		1 AFQT		2 SRT(RGL)		3 JRT Tot.		4 Test A		5 Test B		6 Test C		7 Test D		8 EOCA		
VARIABLE	CATEGORY	N	r	N	r	N	r	N	r	N	r	N	r	N	r	N	r	CATEGORY
	Rec.Sta.			192	.70	194	.64	194	.48	194	.51	194	.60	194	.48			Rec.Sta.
1 AFQT	Pre- JT			162	.82	292	.63	292	.55	292	.38	292	.56	292	.56	272	.54	Pre- JT
	Post JT			146	.66	212	.54	212	.48	212	.35	212	.51	212	.37	210	.53	Post JT
	Rec.Sta.					193	.78	193	.68	193	.53	193	.71	193	.56			Rec.Sta.
2 SRT(RGL)	Pre- JT					187	.80	187	.76	187	.59	187	.73	187	.61	172	.59	Pre- JT
	Post JT					217	.73	217	.64	217	.53	217	.67	217	.48	216	.60	Post JT
	Rec.Sta.							195	.83	195	.73	195	.90	195	.75			Rec.Sta.
3 JRT Tot.	Pre- JT							322	.86	322	.75	322	.91	322	.77	298	.55	Pre- JT
	Post JT							298	.81	298	.70	298	.89	298	.78	295	.53	Post JT
	Rec.Sta.									195	.58	195	.68	195	.51			Rec.Sta.
4 Test A.	Pre- JT									322	.57	322	.70	322	.61	298	.47	Pre- JT
	Post JT									298	.57	298	.68	298	.47	295	.45	Post JT
	Rec.Sta.											195	.64	195	.40			Rec.Sta.
5 Test B	Pre- JT											322	.65	322	.44	298	.38	Pre- JT
	Post JT											298	.59	298	.41	295	.46	Post JT
	Rec.Sta.													195	.46			Rec.Sta.
6 Test C	Pre- JT													322	.52	298	.48	Pre- JT
	Post JT													298	.49	295	.50	Post JT
	Rec.Sta.																	Rec.Sta.
7 Test D	Pre- JT															298	.48	Pre- JT
	Post JT															295	.33	Post JT
	Rec.Sta.																	Rec.Sta.
8 EOCA	Pre- JT																	Pre- JT
	Post JT																	Post JT

Table 7

Correlations of Each Job Reading Task Test (JRTT)

Subtest with the Sum of the Other Subtests

Job Reading Task Test					
Repairman		Supply Clerk		Cook	
Subtest	r	Subtest	r	Subtest	r
A	.68	A	.69	A	.73
B	.71	B	.58	B	.65
C	.59	C	.65	C	.62
D	.57	D	.65	D	.52
E	.65	E	.63		
F	.75				
G	.61				

Figure Captions

Figure 1 Index Sub-test from the Job Reading Task Test (JRTT) for the Cook's job.

Figure 2 Repairman's Job Reading Task Test scores for an unselected sample of men (reception station), men selected for special aptitude in mechanics (Pre-JT), and men selected for aptitude and given job training in the Repairman's job (Post-JT).

Figure 3 Supply Clerk's Job Reading Task Test scores for an unselected sample of men (reception station), men selected for special aptitude in clerical (Pre-JT), and men selected for aptitude and given job training in the Supply Clerk's job (Post-JT).

Figure 4 Cook's job Reading Task Test scores for an unselected sample of men (reception station), men selected for special aptitude in cooking (Pre-JT), and men selected for aptitude and given job training in the Cook's job (Post-JT).

Figure 5 This figure illustrates the use of Job Reading Task Tests for determining functional literacy levels of jobs. The dotted lines indicate the reading grade levels at which 70% of the readers get 70% correct on the Job Reading Task Test (JRTT). Data are for men with training in the job represented by each JRTT.

INDEX A. GENERAL INFORMATION PAGES No. 0

	Card No.
Definition of Terms Used in Food Preparation	A-2
Uses of Dehydrated Sliced Onions and Green Peppers	A-11
Measuring Procedure	A-3
Nonfat Dry Milk	A-10
Recipe Conversion	A-1
Reconstituting Soup and Gravy Bases	A-12
Table of Approximate Percentage Waste and Percentage Edible Portion Yield in the Preparation of Fresh Fruits and Vegetables	A-7
Table of Egg Equivalents	A-8
Table of Measures for 1 Pound Quantities of Commonly Used Foods	A-6
Table of Milk Equivalents	A-9
Table of Weights and Measures for Can Sizes	C-14
Table of Weight and Measure Equivalents	C-15
Tomato Juice Concentrate	

...(1)
...0(1)

...S AND SWEET JUGHS No. 0(2)

	Card No.
Juice Cocktail	
Grapefruit and Pineapple	
Orange and Pineapple	
Seasoned Tomato	
Tomato	
Shrimp Cocktail	
Spiced Fruit Cup	
Stuffed Celery	
Blue-Veined	
Cottage C	
Cottage C	
Peanut Butte	
-Time	
	D-34(2)
	D-32
	D-21(1)
	D-33
formula)	D-34
	D-35
Short-Time	
	D-34(1)
	D-36
adding	D-37
	D-38
Pineapple	D-39
otch Cream	D-40

TEST A NAME:_____

BELOW IS A LIST OF JOBS. NEXT TO EACH JOB IS A BLANK SPACE FOR YOUR ANSWER.

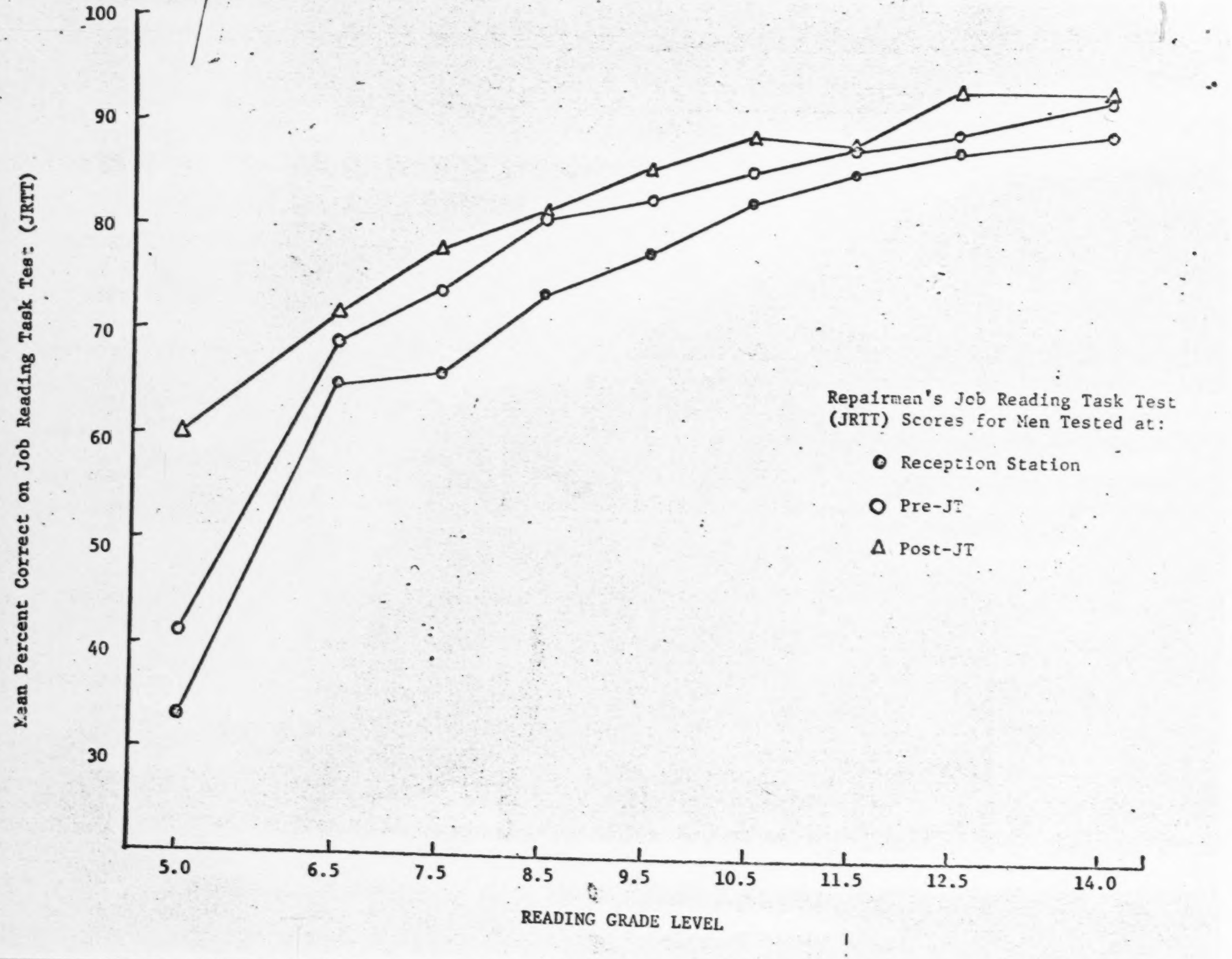
ON THE LEFT SIDE OF THIS BOOKLET IS AN INDEX. YOU ARE TO FIND EACH JOB IN THIS INDEX. WHEN YOU FIND THE JOB IN THE INDEX, YOU WILL SEE A CARD NUMBER TO THE RIGHT OF THE JOB. YOU ARE TO WRITE THIS NUMBER IN THE BLANK SPACE ON THE ANSWER SHEET. NOW, LET'S WORK THROUGH AN EXAMPLE:

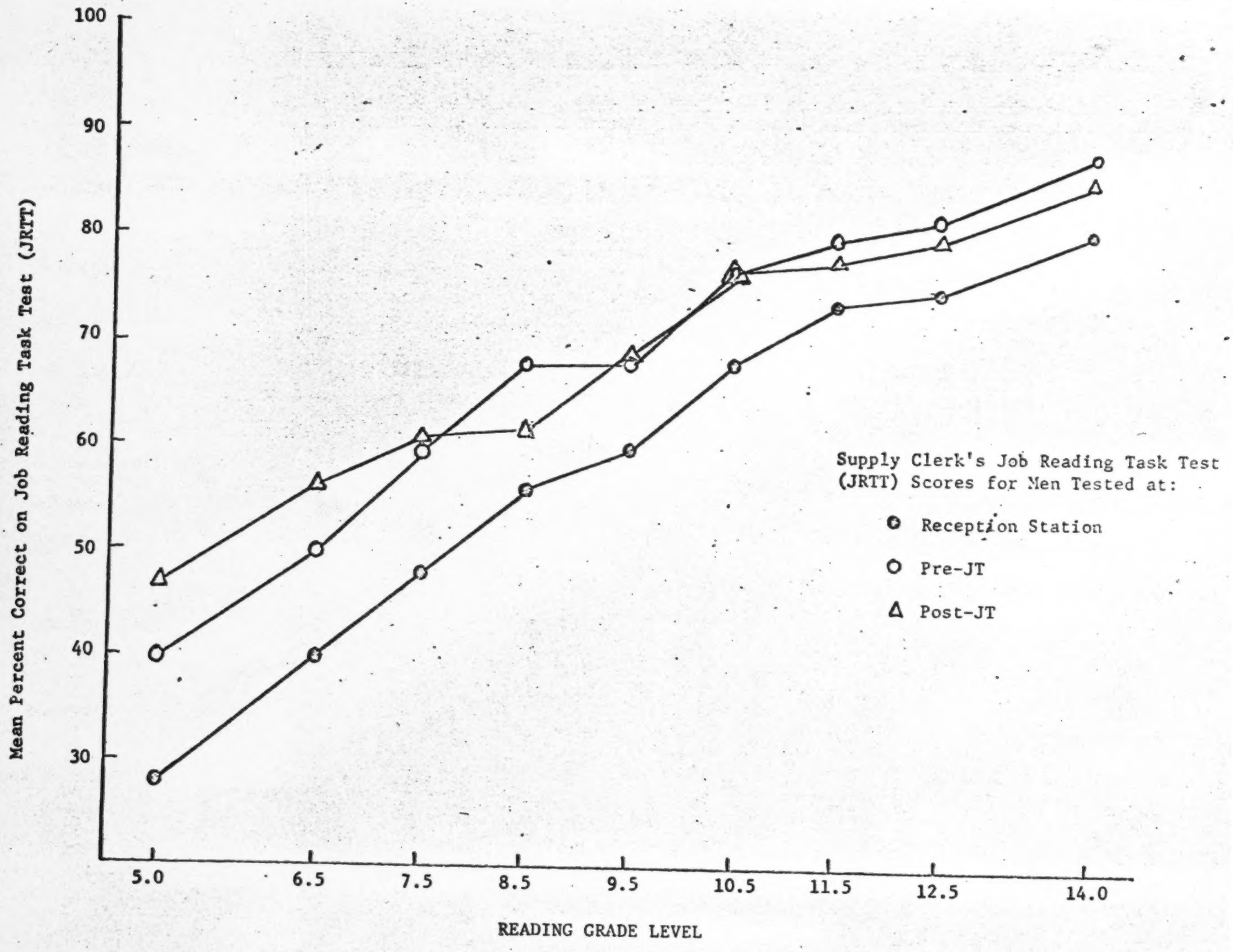
EXAMPLE:	JOB	CARD NO.
	TOASTED GARLIC BREAD	_____

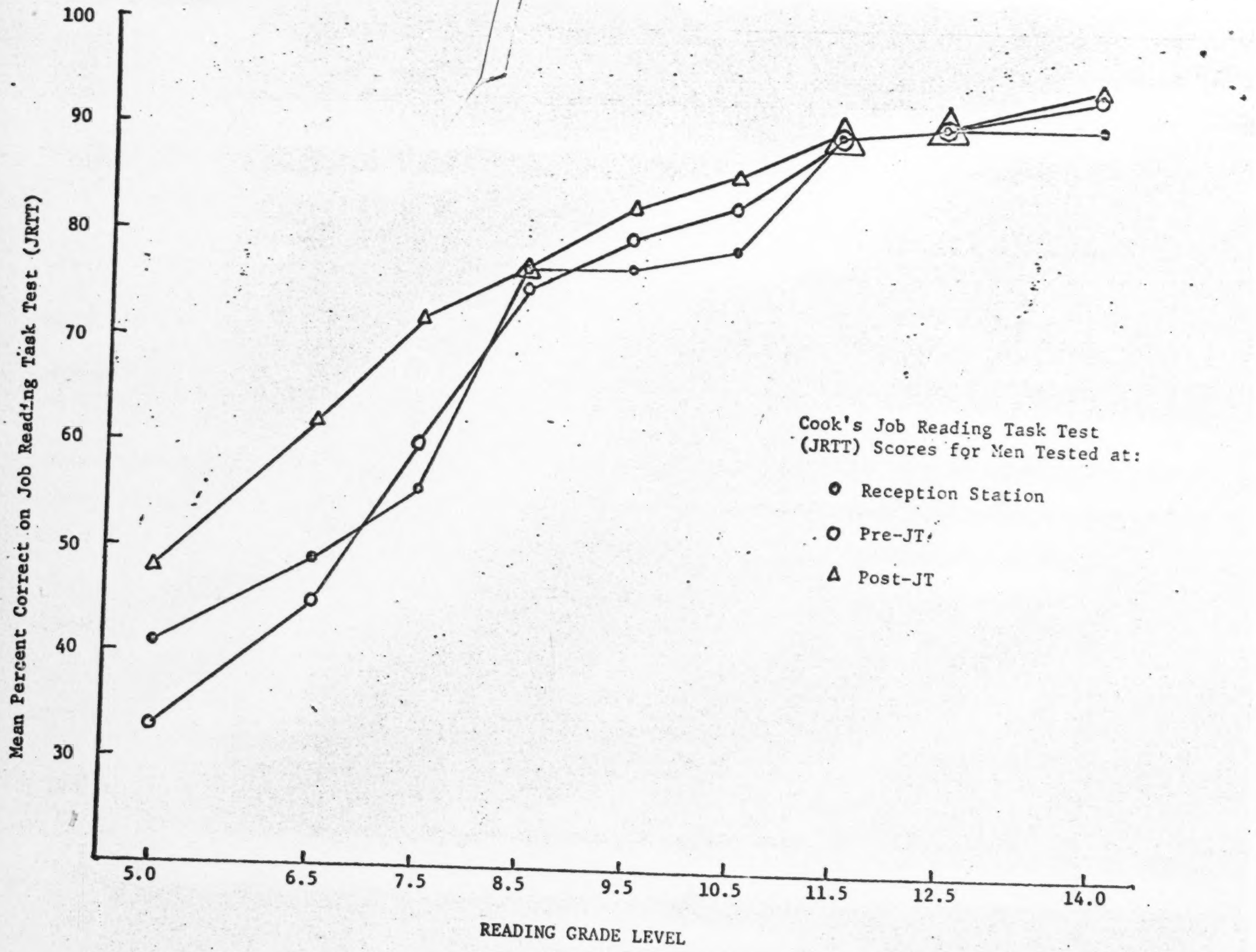
LOOK UP THE BREAD SECTION IN THE INDEX. HAS EVERYONE FOUND IT? IT IS ON THE SECOND PAGE OF THE INDEX. UNDER BREADS, YOU SEE SEVERAL DIFFERENT KINDS OF BREAD. FIND THE CARD NUMBER FOR TOASTED GARLIC. NOW, WRITE YOUR ANSWER IN THE BLANK SPACE. YOUR ANSWER SHOULD BE CARD NO. D-7. DID EVERYONE GET THIS ANSWER CORRECT?

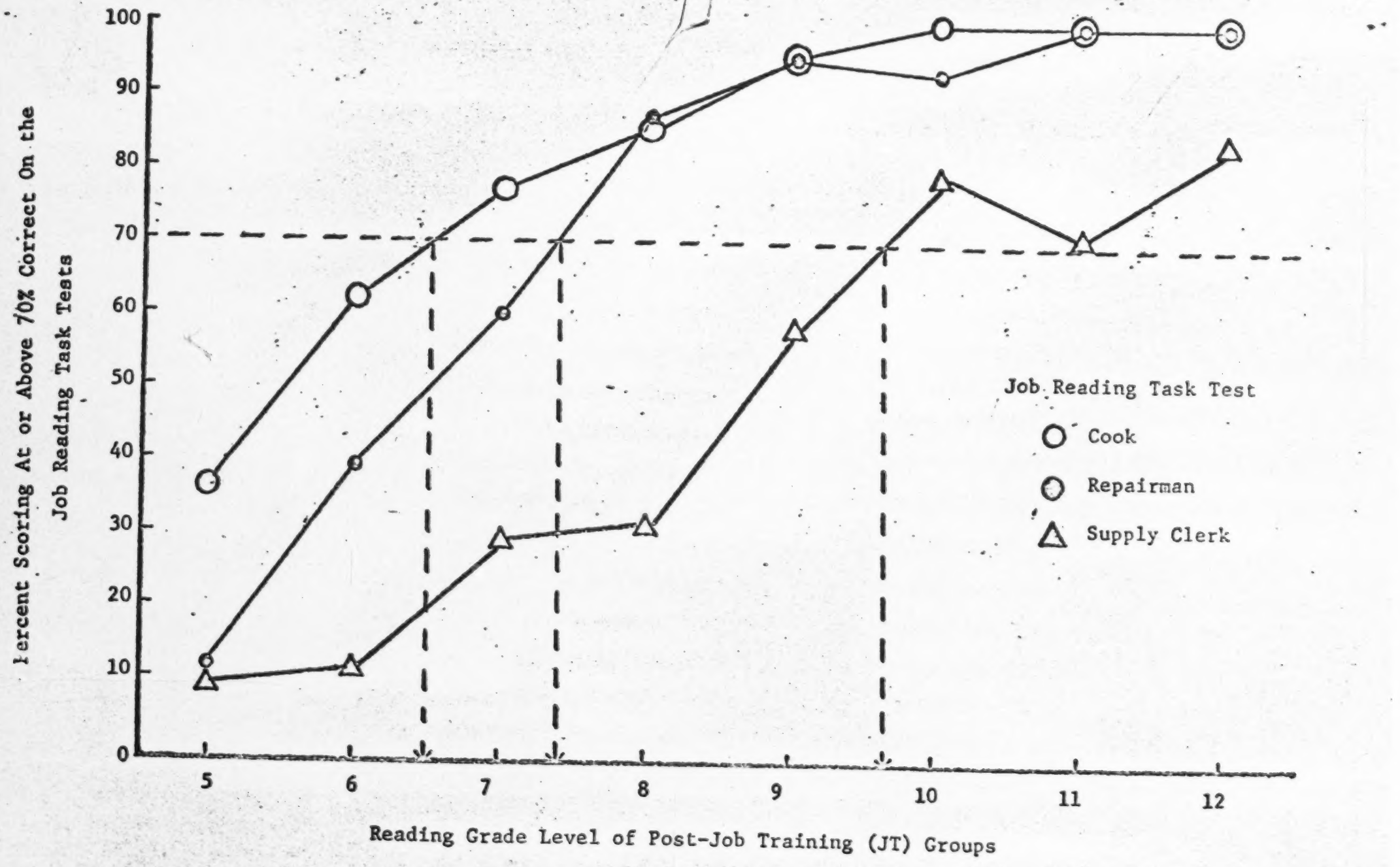
DOES EVERYONE UNDERSTAND WHAT HE IS TO DO? IF THERE ARE NO QUESTIONS, PLEASE BEGIN THE TEST. YOU WILL HAVE____MINUTES. PLEASE ANSWER ALL THE QUESTIONS.

	JOB	CARD NO.
1.	SPARERIBS AND SAUERKRAUT	_____
2.	BAKED POTATOES	_____
3.	CHILI CON CARNE	_____
4.	WHITE CAKE (SHORTENING, BAKERY, EMULSIFIER)	_____
5.	CHICKEN FRICASSEE	_____
6.	GRIDDLE CAKES	_____
7.	NEW ENGLAND BOILED DINNER	_____
8.	LYONNAISE CARROTS	_____
9.	NEW ENGLAND CLAM CHOWDER	_____
10.	BROWNIES	_____


Mean Percent Correct on Job Reading Task Test (JRTT)
100
90
80
70
60
50
40
30
5.0
6.5
7.5
8.5
9.5
10.5
11.5
12.5
14.0
READING GRADE LEVEL
Repairman's Job Reading Task Test (JRTT) Scores for Men Tested at:
Reception Station
Pre-JT
Post-JT


Mean Percent Correct on Job Reading Task Test (JRTT)
100
90
80
70
60
50
40
30
5.0
6.5
7.5
8.5
9.5
10.5
11.5
12.5
14.0
READING GRADE LEVEL
Supply Clerk's Job Reading Task Test (JRTT) Scores for Men Tested at:
Reception Station
Pre-JT
Post-JT


Mean Percent Correct on Job Reading Task Test (JRTT)
100
90
80
70
60
50
40
30
5.0
6.5
7.5
8.5
9.5
10.5
11.5
12.5
14.0
READING GRADE LEVEL
Cook's Job Reading Task Test
(JRTT) Scores for Men Tested at:
Reception Station
Pre-JT
Post-JT


Percent Scoring At or Above 70% Correct On the Job Reading Task Tests
100
90
80
70
60
50
40
30
20
10
0
5
6
7
8
9
10
11
12
Reading Grade Level of Post-Job Training (JT) Groups
Job Reading Task Test
Cook
Repairman
Supply Clerk